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77. The compound according to claim 69 wherein A is -O- or -S-.

78. The compound according to claim 69 wherein R is an aryl, heteroaryl, cycloalkyl or heterocycloalkyl group.

79. The compound according to claim 69 wherein E is absent.

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80. The compound according to claim 69 wherein Y is selected from the group consisting of hydrido, an alkyl, alkoxy, perfluoroalkoxy and a perfluoroalkylthio group.

15

81. The compound according to claim 69 wherein  $R^3$  is a radical that is comprised of a single-ringed aryl or heteroaryl group that is 5- or 6-membered, and is itself substituted at its own 4-position when a 6-membered ring and at its own 3- or 4-position when a 5-membered ring with a substituent selected from the group consisting of a thiophenoxy, 4-chlorophenoxy, 3-chlorophenoxy, 4-methoxyphenoxy, 3-benzodioxol-5-yloxy, 3,4-dimethylphenoxy, 4-fluorophenoxy, 4-fluorothiophenoxy, phenoxy, 4-trifluoromethoxy-phenoxy, 4-trifluoromethylphenoxy, 4-(trifluoromethylthio)phenoxy, 4-(trifluoromethylthio)thiophenoxy, 4-chloro-3-fluorophenoxy, 4-isopropoxyphenoxy, 4-isopropylphenoxy, (2-methyl-1,3-benzothiazol-5-yl)oxy, 4-(1H-imidazol-1-yl)phenoxy, 4-chloro-3-methylphenoxy, 3-methylphenoxy, 4-ethoxyphenoxy, 3,4-

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5 difluorophenoxy, 4-chloro-3-methylphenoxy, 4-fluoro-3-chlorophenoxy, 4-(1H-1,2,4-triazol-1-yl)phenoxy, 3,5-difluorophenoxy, 3,4-dichlorophenoxy, 4-cyclopentylphenoxy, 4-bromo-3-methylphenoxy, 4-bromophenoxy, 4-methylthiophenoxy, 4-phenylphenoxy, 4-benzylphenoxy, 6-quinolinylloxy, 4-amino-3-methylphenoxy, 3-methoxyphenoxy, 5,6,7,8-tetrahydro-2-naphthalenyloxy, 3-hydroxymethylphenoxy, N-piperidyl, N-piperazinyl and a 4-benzyloxyphenoxy  
10 group.

82. The compound according to claim 69 wherein said  $R^3$  group is a  $PhR^{23}$  group, wherein Ph is a phenyl ring that is substituted at its 4-position  
15 by an  $R^{23}$  group that is a substituent selected from the group consisting of another single-ringed aryl or heteroaryl group, a piperidyl group, a piperazinyl group, a phenoxy group, a thiophenoxy group, a phenylazo group and a benzamido group.

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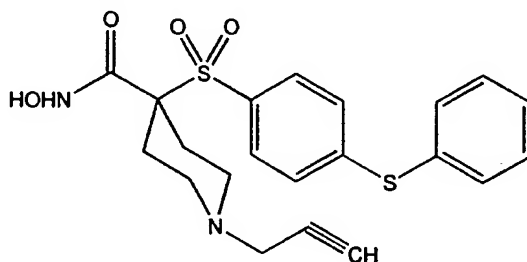
83. The compound according to claim 82 wherein said  $R^{23}$  group is itself substituted with a moiety that is selected from the group consisting of a halogen, a  $C_1$ - $C_4$  alkoxy group, a  $C_1$ - $C_4$  alkyl group,  
25 a dimethylamino group, a carboxyl  $C_1$ - $C_3$  alkylene group, a  $C_1$ - $C_4$  alkoxy carbonyl  $C_1$ - $C_3$  alkylene group, a trifluoromethylthio group, a trifluoromethoxy group, a trifluoromethyl group and a carboxamido  $C_1$ - $C_3$  alkylene group, or is substituted at the meta- and  
30 para-positions by a methylenedioxy group.

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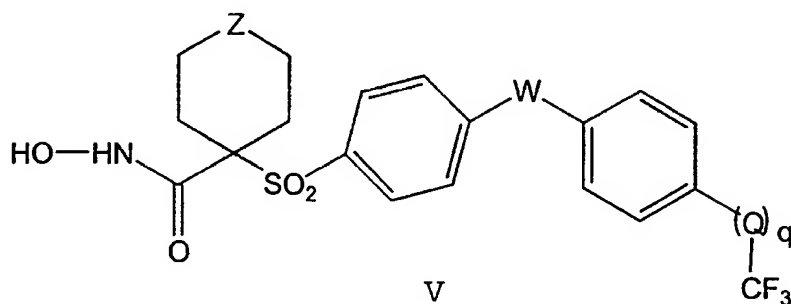
84. The compound according to claim 83 wherein said  $R^{23}$  group is substituted at the para-position.

5 85. The compound according to claim 84 wherein said  $R^{23}$  group is phenoxy.

86. The compound according to claim 69 wherein said inhibitor corresponds in structure to  
10 the formula



87. A compound corresponding in structure to formula V, below, or a pharmaceutically acceptable  
15 salt thereof



20 wherein  
Z is O, S or  $NR^6$ ;

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W and Q are independently oxygen (O), NR<sup>6</sup> or sulfur (S),

R<sup>6</sup> is selected from the group consisting of C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, amino-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminosulfonyl, heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy carbonyl, and C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl; and

q is zero or one such that when q is zero, Q is absent and the trifluoromethyl group is bonded directly to the depicted phenyl ring.

88. The compound according to claim 87 wherein q is zero.

89. The compound according to claim 87 wherein W is O.

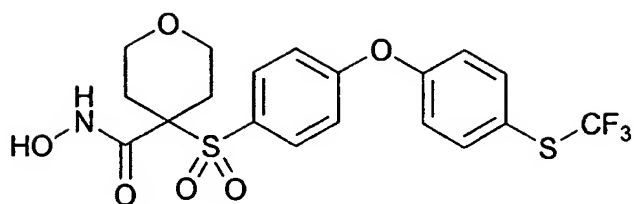
90. The compound according to claim 89 wherein q is zero.

91. The compound according to claim 89 wherein q is one and Q is O.

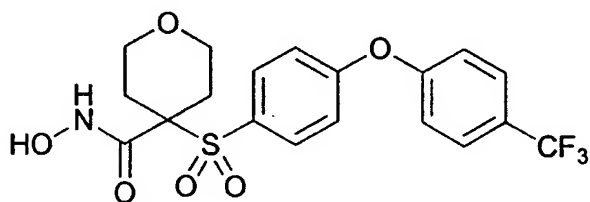
92. The compound according to claim 89 wherein q is one and Q is S.

93. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula

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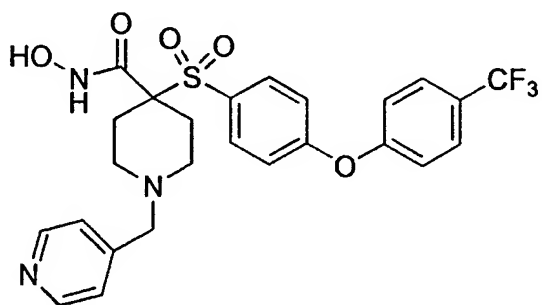


94. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula



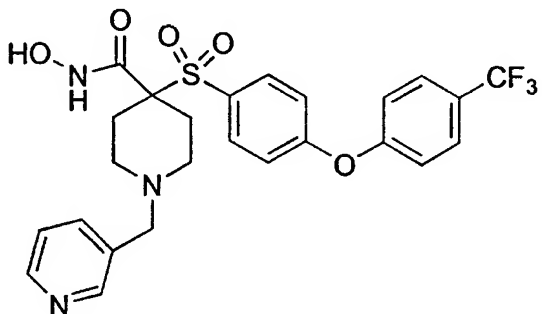
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95. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula



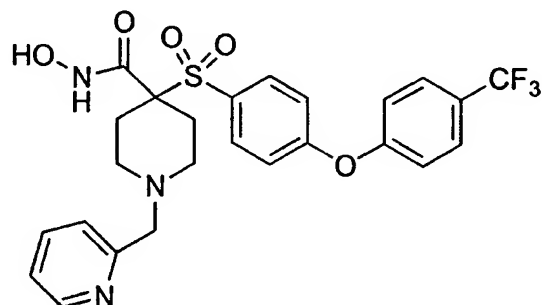
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96. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula

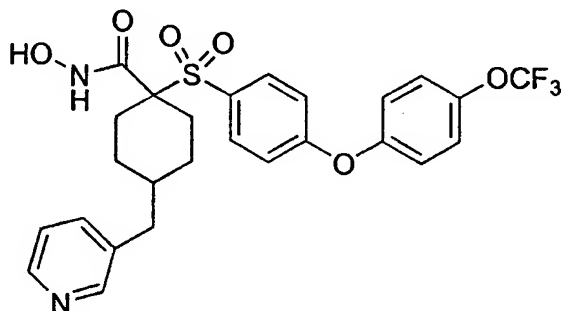


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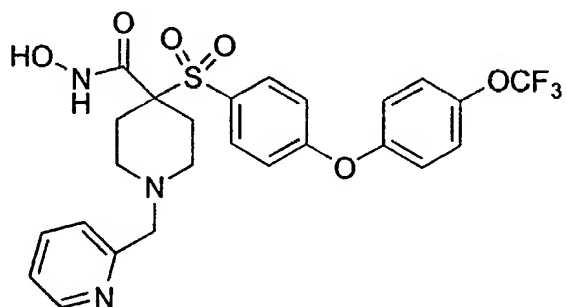
97. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula



5 98. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula

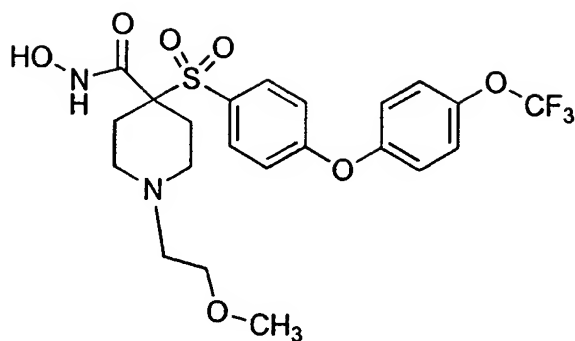


10 99. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula

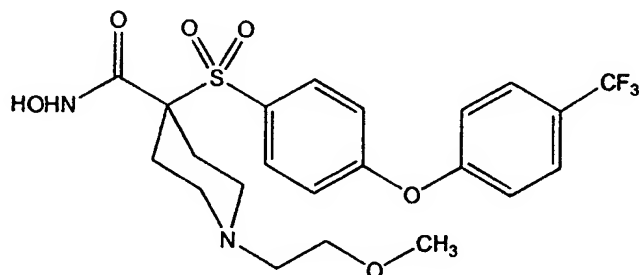


15 100. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula

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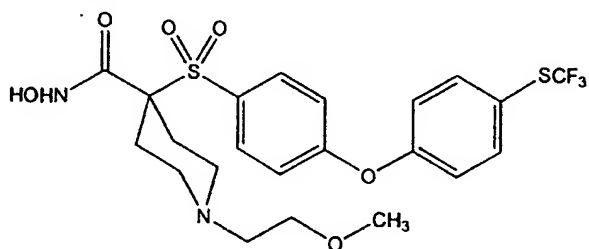


101. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula



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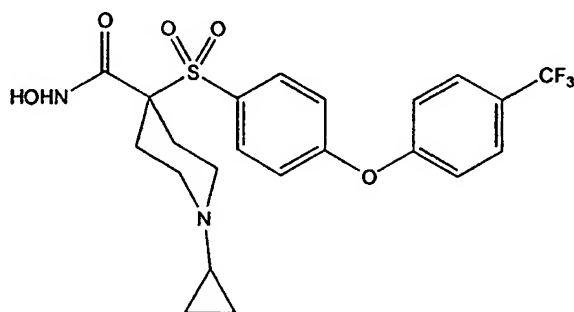
102. The compound according to claim 87 wherein said inhibitor corresponds in structure to the formula



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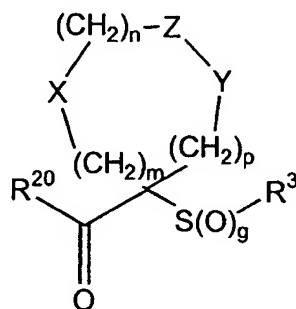
103. The compound according to 87 wherein said inhibitor corresponds in structure to the formula

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104. An intermediate compound  
corresponding in structure to formula VI, below

5



VI

wherein

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g is zero, 1 or 2;

R<sup>3</sup> is an optionally substituted aryl or optionally substituted heteroaryl radical, and when said aryl or heteroaryl radical is substituted, the substituent is (a) selected from the group consisting  
15 of an optionally substituted cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, aralkoxy, heteroaralkoxy, aralkoxyalkyl, aryloxyalkyl, aralkanoylalkyl, arylcarbonylalkyl, aralkylaryl, aryloxyalkylaryl, aralkoxyaryl, arylazoaryl, arylhydrazinoaryl, alkylthioaryl, arylthioalkyl, alkylthioaralkyl,

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aralkylthioalkyl, an aralkylthioaryl radical, the sulfoxide or sulfone of any of the thio substituents, and a fused ring structure comprising two or more 5- or 6-membered rings selected from the group

5 consisting of aryl, heteroaryl, cycloalkyl and heterocycloalkyl, and (b) is itself optionally substituted with one or more substituents independently selected from the group consisting of a cyano, perfluoroalkyl, trifluoromethoxy,

10 trifluoromethylthio, haloalkyl, trifluoromethylalkyl, aralkoxycarbonyl, aryloxycarbonyl, hydroxy, halo, alkyl, alkoxy, nitro, thiol, hydroxycarbonyl, aryloxy, arylthio, aralkyl, aryl, arylcarbonylamino, heteroaryloxy, heteroarylthio, heteroaralkyl,

15 cycloalkyl, heterocyclooxy, heterocyclothio, heterocycloamino, cycloalkyloxy, cycloalkylthio, heteroaralkoxy, heteroaralkylthio, aralkoxy, aralkylthio, aralkylamino, heterocyclo, heteroaryl, arylazo, hydroxycarbonylalkoxy, alkoxycarbonylalkoxy,

20 alkanoyl, arylcarbonyl, aralkanoyl, alkanoyloxy, aralkanoyloxy, hydroxyalkyl, hydroxyalkoxy, alkylthio, alkoxyalkylthio, alkoxycarbonyl, aryloxyalkoxyaryl, arylthioalkylthioaryl, aryloxyalkylthioaryl, arylthioalkoxyaryl,

25 hydroxycarbonylalkoxy, hydroxycarbonylalkylthio, alkoxycarbonylalkoxy, alkoxycarbonylalkylthio, amino, wherein the amino nitrogen is (i) unsubstituted, or (ii) substituted with one or two substituents that are independently selected from the group

30 consisting of an alkyl, aryl, heteroaryl, aralkyl, cycloalkyl, aralkoxycarbonyl, alkoxycarbonyl, arylcarbonyl, aralkanoyl, heteroarylcarbonyl, heteroaralkanoyl and an

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alkanoyl group, or (iii) wherein the amino nitrogen and two substituents attached thereto form a 5- to 8-membered heterocyclo or heteroaryl ring containing zero to two additional heteroatoms that are nitrogen, oxygen or sulfur and which ring itself is (a) unsubstituted or (b) substituted with one or two groups independently selected from the group consisting of an aryl, alkyl, heteroaryl, aralkyl, heteroaralkyl, hydroxy, alkoxy, alkanoyl, cycloalkyl, heterocycloalkyl, alkoxycarbonyl, hydroxyalkyl, trifluoromethyl, benzofused heterocycloalkyl, hydroxyalkoxyalkyl, aralkoxycarbonyl, hydroxycarbonyl, aryloxy carbonyl, benzofused heterocycloalkoxy, benzofused cycloalkylcarbonyl, heterocycloalkylcarbonyl, and a cycloalkylcarbonyl group, carbonylamino wherein the carbonylamino nitrogen is (i) unsubstituted, or (ii) is the reacted amine of an amino acid, or (iii) substituted with one or two radicals selected from the group consisting of an alkyl, hydroxyalkyl, hydroxyheteroaralkyl, cycloalkyl, aralkyl, trifluoromethylalkyl, heterocycloalkyl, benzofused heterocycloalkyl, benzofused heterocycloalkyl, benzofused cycloalkyl, and an N,N-dialkylsubstituted alkylamino-alkyl group, or (iv) the carboxamido nitrogen and two substituents bonded thereto together form a 5- to 8-membered heterocyclo, heteroaryl or benzofused heterocycloalkyl ring that is itself unsubstituted or substituted with one or two radicals independently selected from

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the group consisting of an alkyl,  
alkoxycarbonyl, nitro, heterocycloalkyl,  
hydroxy, hydroxycarbonyl, aryl, aralkyl,  
heteroaralkyl and an amino group,

5                wherein the amino nitrogen is  
                 (i) unsubstituted, or (ii) substituted with  
                 one or two substituents that are  
                 independently selected from the group  
                 consisting of alkyl, aryl, and heteroaryl,  
10                or (iii) wherein the amino nitrogen and two  
                 substituents attached thereto form a 5- to  
                 8-membered heterocyclo or heteroaryl ring,  
and an aminoalkyl group

                 wherein the aminoalkyl nitrogen is (i)  
15                unsubstituted, or (ii) substituted with one or two  
                 substituents independently selected from the group  
                 consisting of an alkyl, aryl, aralkyl, cycloalkyl,  
                 aralkoxycarbonyl, alkoxycarbonyl, and an alkanoyl  
                 group, or (iii) wherein the aminoalkyl nitrogen and  
20                two substituents attached thereto form a 5- to 8-  
                 membered heterocyclo or heteroaryl ring, or is  
                 an aryl or heteroaryl group that is substituted with  
                 a nucleophilically displaceable leaving group;

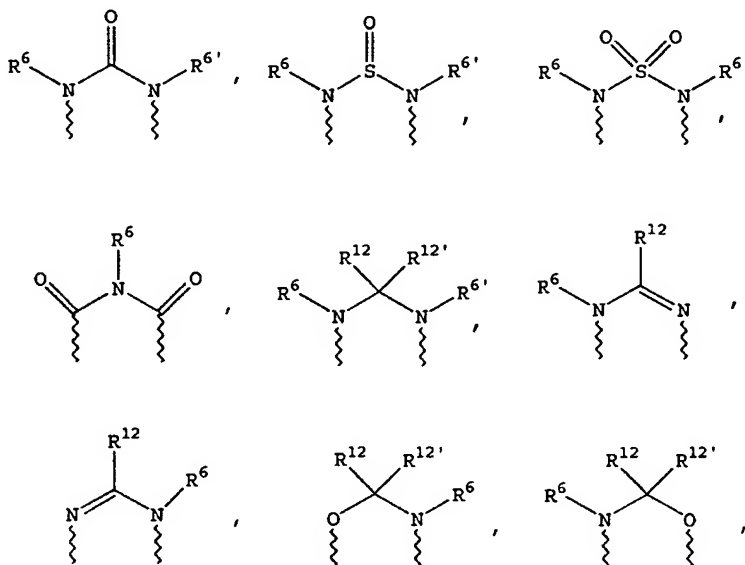
                 m is zero, 1 or 2;  
25                n is zero, 1 or 2;  
                 p is zero, 1 or 2;  
                 the sum of  $m + n + p = 1, 2, 3$  or 4;  
                 (a) one of X, Y and Z is selected from the  
                 group consisting of  $C(O)$ ,  $NR^6$ , O, S,  $S(O)$ ,  $S(O)_2$  and  
30                 $NS(O)_2R^7$ , and the remaining two of X, Y and Z are  
                  $CR^8R^9$ , and  $CR^{10}R^{11}$ , or

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(b) X and Z or Z and Y together constitute a moiety that is selected from the group consisting of  $\text{NR}^6\text{C}(\text{O})$ ,  $\text{NR}^6\text{S}(\text{O})$ ,  $\text{NR}^6\text{S}(\text{O})_2$ ,  $\text{NR}^6\text{S}$ ,  $\text{NR}^6\text{O}$ ,  $\text{SS}$ ,  $\text{NR}^6\text{NR}^6$  and  $\text{OC}(\text{O})$ , with the remaining one of X, Y and Z being

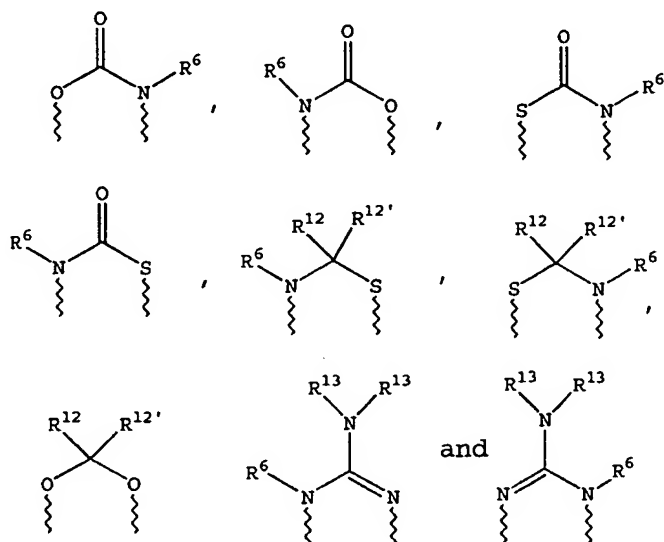
5  $\text{CR}^8\text{R}^9$ , or

(c) n is zero and X, Y and Z together constitute a moiety selected from the group consisting of



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wherein wavy lines are bonds to the atoms of the depicted ring;

- 5            R<sup>6</sup> and R<sup>6'</sup> are independently selected from the group consisting of hydrido, C<sub>1</sub>-C<sub>6</sub>-alkanoyl, C<sub>6</sub>-aryl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aroyl, bis(C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl)-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-perfluoroalkyl, C<sub>1</sub>-C<sub>6</sub>-trifluoromethylalkyl, C<sub>1</sub>-C<sub>6</sub>-
- 10 perfluoroalkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>3</sub>-C<sub>8</sub>-heterocycloalkyl, C<sub>3</sub>-C<sub>8</sub>-heterocycloalkylcarbonyl, C<sub>6</sub>-aryl, C<sub>5</sub>-C<sub>6</sub>-heterocyclo, C<sub>5</sub>-C<sub>6</sub>-heteroaryl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-
- 15 C<sub>6</sub>-alkyl, heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-arylsulfonyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl, C<sub>5</sub>-C<sub>6</sub>-heteroarylsulfonyl, carboxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminocarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkyliminocarbonyl, C<sub>6</sub>-

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aryliminocarbonyl, C<sub>5</sub>-C<sub>6</sub>-heterocycloiminocarbonyl, C<sub>6</sub>-arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-arylthio-C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>1</sub>-C<sub>4</sub>-alkylthio-C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>5</sub>-C<sub>6</sub>-heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>5</sub>-alkoxycarbonyl, aryloxy carbonyl, NR<sup>8</sup>R<sup>9</sup>-C<sub>1</sub>-C<sub>5</sub>-alkylcarbonyl, hydroxy-C<sub>1</sub>-C<sub>5</sub>-alkyl, an aminocarbonyl wherein the aminocarbonyl nitrogen is

10 (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group,

hydroxyaminocarbonyl, an aminosulfonyl group wherein

15 the aminosulfonyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group, an amino-C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl

20 group wherein the amino-C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group and an amino-

25 C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group;

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$R^7$  is selected from the group consisting of a arylalkyl, aryl, heteroaryl, heterocyclo,  $C_1$ - $C_6$ -alkyl,  $C_3$ - $C_6$ -alkynyl,  $C_3$ - $C_6$ -alkenyl,  $C_1$ - $C_6$ -carboxyalkyl and a  $C_1$ - $C_6$ -hydroxyalkyl group;

- 5  $R^8$  and  $R^9$  and  $R^{10}$  and  $R^{11}$  are independently selected from the group consisting of a hydrido, hydroxy,  $C_1$ - $C_6$ -alkyl, aryl, ar- $C_1$ - $C_6$ -alkyl, heteroaryl, heteroar- $C_1$ - $C_6$ -alkyl,  $C_2$ - $C_6$ -alkynyl,  $C_2$ - $C_6$ -alkenyl, thiol- $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -alkylthio- $C_1$ - $C_6$ -  
10 alkyl cycloalkyl, cycloalkyl- $C_1$ - $C_6$ -alkyl, heterocycloalkyl- $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -alkoxy- $C_1$ - $C_6$ -alkyl, aralkoxy- $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -alkoxy- $C_1$ - $C_6$ -alkoxy- $C_1$ - $C_6$ -alkyl, hydroxy- $C_1$ - $C_6$ -alkyl, hydroxycarbonyl- $C_1$ - $C_6$ -alkyl, hydroxycarbonylar- $C_1$ - $C_6$ -  
15 alkyl, aminocarbonyl- $C_1$ - $C_6$ -alkyl, aryloxy- $C_1$ - $C_6$ -alkyl, heteroaryloxy- $C_1$ - $C_6$ -alkyl, arylthio- $C_1$ - $C_6$ -alkyl, heteroarylthio- $C_1$ - $C_6$ -alkyl, the sulfoxide or sulfone of any said thio substituents, perfluoro- $C_1$ - $C_6$ -alkyl, trifluoromethyl- $C_1$ - $C_6$ -alkyl, halo- $C_1$ - $C_6$ -  
20 alkyl, alkoxycarbonylamino- $C_1$ - $C_6$ -alkyl and an amino- $C_1$ - $C_6$ -alkyl group wherein the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of  $C_1$ - $C_6$ -alkyl, ar- $C_1$ - $C_6$ -alkyl, cycloalkyl  
25 and  $C_1$ - $C_6$ -alkanoyl, or wherein  $R^8$  and  $R^9$  or  $R^{10}$  and  $R^{11}$  and the carbon to which they are bonded form a carbonyl group, or wherein  $R^8$  and  $R^9$  or  $R^{10}$  and  $R^{11}$ , or  $R^8$  and  $R^{10}$  together with the atoms to which they

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are bonded form a 5- to 8-membered carbocyclic ring,  
or a 5- to 8-membered heterocyclic ring containing  
one or two heteroatoms that are nitrogen, oxygen, or  
sulfur, with the proviso that only one of R<sup>8</sup> and R<sup>9</sup>

5 or R<sup>10</sup> and R<sup>11</sup> is hydroxy;

R<sup>12</sup> and R<sup>12'</sup> are independently selected  
from the group consisting of a hydrido, C<sub>1</sub>-C<sub>6</sub>-alkyl,  
aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl, heteroaralkyl, C<sub>2</sub>-  
C<sub>6</sub>-alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkyl,  
10 cycloalkyl, cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, heterocycloalkyl-  
C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-  
alkyl, amino-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-  
C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonyl-C<sub>1</sub>-  
C<sub>6</sub>-alkyl, hydroxycarbonylar-C<sub>1</sub>-C<sub>6</sub>-alkyl,  
15 aminocarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl,  
heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-  
alkyl, arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-  
alkyl, the sulfoxide or sulfone of any said thio  
substituents, perfluoro-C<sub>1</sub>-C<sub>6</sub>-alkyl, trifluoromethyl-  
20 C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkyl, alkoxycarbonylamino-  
C<sub>1</sub>-C<sub>6</sub>-alkyl and an amino-C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein  
the aminoalkyl nitrogen is (i) unsubstituted or (ii)  
substituted with one or two radicals independently  
selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl,  
25 ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, cycloalkyl and C<sub>1</sub>-C<sub>6</sub>-alkanoyl;

R<sup>13</sup> is selected from the group consisting  
of a hydrido, benzyl, phenyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-



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alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl and a C<sub>1</sub>-C<sub>6</sub>-hydroxyalkyl group; and

R<sup>20</sup> is (a) -O-R<sup>21</sup>, where R<sup>21</sup> is selected from the group consisting of a hydrido, C<sub>1</sub>-C<sub>6</sub>-alkyl, aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl group and a pharmaceutically acceptable cation, or (b) -NH-O-R<sup>22</sup> wherein R<sup>22</sup> is a selectively removable protecting group.

105. The intermediate compound according to claim 104 wherein R<sup>3</sup> is the substituent G-A-R-E-Y wherein

G is an aryl or heteroaryl group;

A is selected from the group consisting of

- (1) -O-;
- (2) -S-;
- (3) -NR<sup>17</sup>-;
- (4) -CO-N(R<sup>17</sup>) or -N(R<sup>17</sup>)-CO-, wherein R<sup>17</sup> is hydrogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, or phenyl;
- (5) -CO-O- or -O-CO-;
- (6) -O-CO-O-;
- (7) -HC=CH-;
- (8) -NH-CO-NH-;
- (9) -C≡C-;
- (10) -NH-CO-O- or -O-CO-NH-;
- (11) -N=N-;
- (12) -NH-NH-; and
- (13) -CS-N(R<sup>18</sup>)- or -N(R<sup>18</sup>)-CS-, wherein R<sup>18</sup> is hydrogen C<sub>1</sub>-C<sub>4</sub>-alkyl, or phenyl; or

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(14) A is absent and G is bonded directly to R;

R is a moiety selected from the group consisting of alkyl, alkoxyalkyl, aryl, heteroaryl, cycloalkyl, heterocycloalkyl, aralkyl, heteroaralkyl, heterocycloalkylalkyl, cycloalkylalkyl, cycloalkoxyalkyl, heterocycloalkoxyalkyl, aryloxyalkyl, heteroaryloxyalkyl, arylthioalkyl, heteroarylthioalkyl, cycloalkylthioalkyl, and a heterocycloalkylthioalkyl group wherein the aryl or heteroaryl or cycloalkyl or heterocycloalkyl substituent is (i) unsubstituted or (ii) substituted with one or two radicals selected from the group consisting of a halo, alkyl, perfluoroalkyl, perfluoroalkoxy, perfluoroalkylthio, trifluoromethylalkyl, amino, alkoxycarbonylalkyl, alkoxy, C<sub>1</sub>-C<sub>2</sub>-alkylene-dioxy, hydroxycarbonylalkyl, hydroxycarbonylalkylamino, nitro, hydroxy, hydroxyalkyl, alkanoylamino, and a alkoxycarbonyl group, and R is other than alkyl or alkoxyalkyl when A is -O- or -S-;

E is selected from the group consisting of

- (1) -CO(R<sup>19</sup>)- or -(R<sup>19</sup>)CO-, wherein R<sup>19</sup> is a heterocycloalkyl, or a cycloalkyl group;
- (2) -CONH- or -HNCO-; and
- (3) -CO-;
- (4) -SO<sub>2</sub>-R<sup>19</sup>- or -R<sup>19</sup>-SO<sub>2</sub>-;
- (5) -SO<sub>2</sub>-;
- (6) -NH-SO<sub>2</sub>- or -SO<sub>2</sub>-NH-; or

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(7) E is absent and R is bonded directly to Y; and

Y is absent or is selected from the group consisting of a hydrido, alkyl, alkoxy, haloalkyl, aryl, aralkyl, cycloalkyl, heteroaryl, hydroxy, aryloxy, aralkoxy, heteroaryloxy, heteroaralkyl, perfluoroalkoxy, perfluoroalkylthio, trifluoromethylalkyl, alkenyl, heterocycloalkyl, cycloalkyl, trifluoromethyl, alkoxycarbonyl, and a aminoalkyl group, wherein the aryl or heteroaryl or heterocycloalkyl group is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of an alkanoyl, halo, nitro, aralkyl, aryl, alkoxy, and an amino group wherein the amino nitrogen is (i) unsubstituted or (ii) substituted with one or two groups independently selected from hydrido, alkyl, and an aralkyl group.

106. The intermediate compound according to claim 104 wherein said -G-A-R-E-Y substituent contains two to four carbocyclic or heterocyclic rings.

107. The intermediate compound according to claim 106 wherein each of the two to four rings is 6-membered.

108. The intermediate compound according to claim 104 wherein said -G-A-R-E-Y substituent has a length that is greater than a hexyl group and a length that is less than that of a stearyl group.

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109. The intermediate compound according to claim 104 wherein A is -O- or -S-.

5 110. The intermediate compound according to claim 104 wherein R is an aryl, heteroaryl, cycloalkyl or heterocycloalkyl group.

111. The intermediate compound according to claim 104 wherein E is absent.

112. The intermediate compound according to claim 104 wherein Y is selected from the group consisting of hydrido, an alkyl, alkoxy, 15 perfluoroalkoxy and a perfluoroalkylthio group.

113. The intermediate compound according to claim 104 wherein  $R^{14}$  is hydrido.

20 114. The intermediate compound according to claim 104 wherein W of the  $C(W)R^{15}$  is O and  $R^{15}$  is a  $C_1$ - $C_6$ -alkyl, aryl,  $C_1$ - $C_6$ -alkoxy, heteroaryl- $C_1$ - $C_6$ -alkyl,  $C_3$ - $C_8$ -cycloalkyl- $C_1$ - $C_6$ -alkyl, or aryloxy group.

25 115. The intermediate compound according to claim 103 wherein  $R^3$  is a single-ringed aryl or heteroaryl group that is 5- or 6-membered, and is itself substituted at its own 4-position when a 6-membered ring and at its own 3- or 4-position when a 5-membered ring with a substituent selected from 30

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the group consisting of a thiophenoxy, 4-chloro-  
 phenoxy, 3-chlorophenoxy, 4-methoxyphenoxy, 3-  
 benzodioxol-5-yloxy, 3,4-dimethylphenoxy, 4-  
 fluorophenoxy, 4-fluorothiophenoxy, phenoxy, 4-  
 5 trifluoro-methoxyphenoxy, 4-trifluoromethylphenoxy,  
 4-(trifluoromethylthio)phenoxy, 4-(trifluoromethyl-  
 thio)thiophenoxy, 4-chloro-3-fluorophenoxy, 4-  
 isopropoxyphenoxy, 4-isopropylphenoxy, (2-methyl-1,3-  
 benzothiazol-5-yl)oxy, 4-(1H-imidazol-1-yl)phenoxy,  
 10 4-chloro-3-methylphenoxy, 3-methyl-phenoxy, 4-  
 ethoxyphenoxy, 3,4-difluorophenoxy, 4-chloro-3-  
 methylphenoxy, 4-fluoro-3-chlorophenoxy, 4-(1H-1,2,4-  
 triazol-1-yl)phenoxy, 3,5-difluorophenoxy, 3,4-  
 dichlorophenoxy, 4-cyclopentylphenoxy, 4-bromo-3-  
 15 methylphenoxy, 4-bromophenoxy, 4-methylthiophenoxy,  
 4-phenylphenoxy, 4-benzylphenoxy, 6-quinolinyloxy, 4-  
 amino-3-methylphenoxy, 3-methoxyphenoxy, 5,6,7,8-  
 tetrahydro-2-naphthalenyloxy, 3-hydroxymethylphenoxy,  
 and a 4-benzyloxyphenoxy group.

20

116. The intermediate compound according  
 to claim 103 wherein said selectively removable  
 protecting group is selected from the group  
 consisting of a 2-tetrahydropyranyl, C<sub>1</sub>-C<sub>6</sub>-acyl,  
 25 aroyl, benzyl, p-methoxybenzyloxycarbonyl,  
 benzyloxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-  
 alkoxy-CH<sub>2</sub>- , C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-CH<sub>2</sub>- and an  
 o-nitrophenyl group.

30

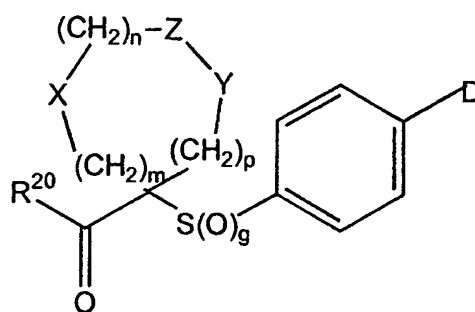
117. The intermediate compound according  
 to claim 103 wherein said nucleophilically  
 displaceable leaving group is selected from the group

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- consisting of a halo, nitro, azido, phenylsulfoxido, aryloxy, C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfonate or arylsulfonate group and a trisubstituted ammonium group in which the three substituents are
- 5 independently aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkyl.

118. The intermediate compound according to claim 103 wherein g is zero.

- 10 119. An intermediate compound that corresponds in structure to formula VII, below



VII

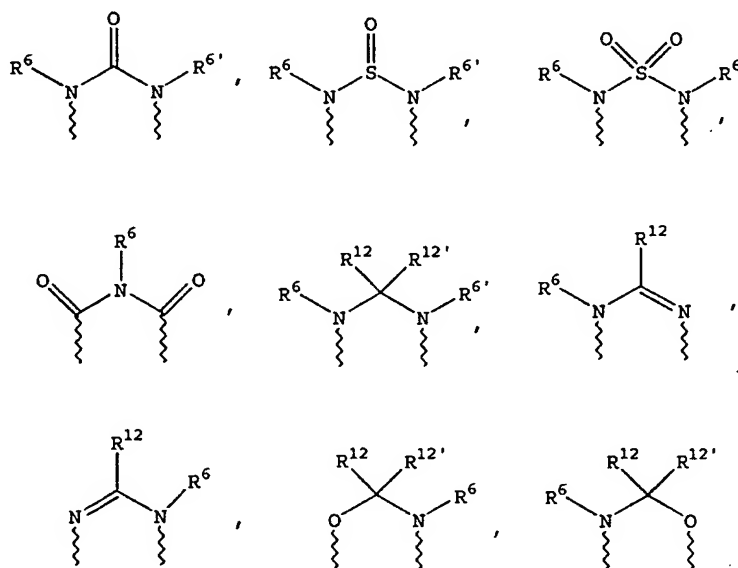
- 15 wherein
- g is zero, 1 or 2;
- D is a nucleophilically displaceable leaving group;
- m is zero, 1 or 2;
- 20 n is zero, 1 or 2;
- p is zero, 1 or 2;
- the sum of m + n + p = 1, 2, 3 or 4;
- (a) one of X, Y and Z is selected from the group consisting of C(O), NR<sup>6</sup>, O, S, S(O), S(O)<sub>2</sub>

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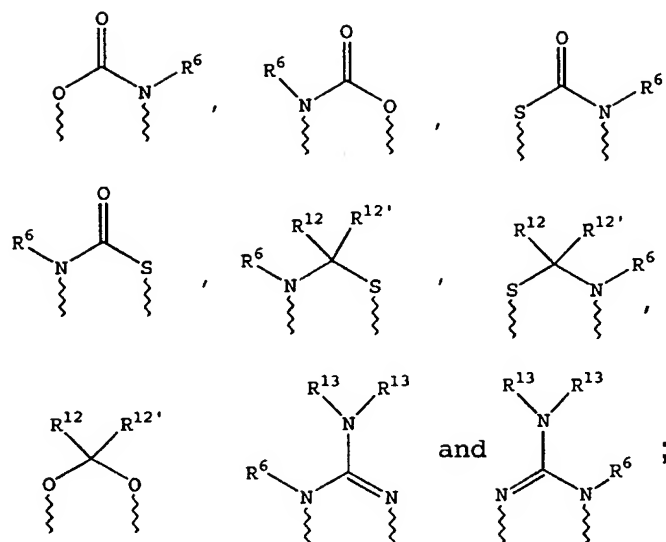
and  $\text{NS(O)}_2\text{R}^7$ , and the remaining two of X, Y and Z are  $\text{CR}^8\text{R}^9$ , and  $\text{CR}^{10}\text{R}^{11}$ , or

(b) X and Z or Z and Y together constitute a moiety that is selected from the group  
 5 consisting of  $\text{NR}^6\text{C(O)}$ ,  $\text{NR}^6\text{S(O)}$ ,  $\text{NR}^6\text{S(O)}_2$ ,  $\text{NR}^6\text{S}$ ,  $\text{NR}^6\text{O}$ ,  $\text{SS}$ ,  $\text{NR}^6\text{NR}^6$  and  $\text{OC(O)}$ , with the remaining one of X, Y and Z being  $\text{CR}^8\text{R}^9$ , or

(c) n is zero and X, Y and Z together constitute a moiety selected from the group  
 10 consisting of



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wherein wavy lines are bonds to the atoms of the depicted ring;

- 5           R<sup>6</sup> and R<sup>6'</sup> are independently selected from the group consisting of hydrido, C<sub>1</sub>-C<sub>6</sub>-alkanoyl, C<sub>6</sub>-aryl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aroyl, bis(C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl)-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-perfluoroalkyl, C<sub>1</sub>-C<sub>6</sub>-trifluoromethylalkyl, C<sub>1</sub>-C<sub>6</sub>-
- 10 perfluoroalkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>3</sub>-C<sub>8</sub>-heterocycloalkyl, C<sub>3</sub>-C<sub>8</sub>-heterocycloalkylcarbonyl, C<sub>6</sub>-aryl, C<sub>5</sub>-C<sub>6</sub>-heterocyclo, C<sub>5</sub>-C<sub>6</sub>-heteroaryl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl,
- 15 heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-arylsulfonyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl, C<sub>5</sub>-C<sub>6</sub>-heteroarylsulfonyl, carboxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminocarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkyliminocarbonyl, C<sub>6</sub>-



aryliminocarbonyl, C<sub>5</sub>-C<sub>6</sub>-heterocycloiminocarbonyl, C<sub>6</sub>-arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-arylthio-C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>1</sub>-C<sub>4</sub>-alkylthio-C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>5</sub>-C<sub>6</sub>-heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>5</sub>-alkoxycarbonyl, aryloxy carbonyl, NR<sup>8</sup>R<sup>9</sup>-C<sub>1</sub>-C<sub>5</sub>-alkylcarbonyl, hydroxy-C<sub>1</sub>-C<sub>5</sub>-alkyl, an aminocarbonyl wherein the aminocarbonyl nitrogen is

10 (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group,

hydroxyaminocarbonyl, an aminosulfonyl group wherein

15 the aminosulfonyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group, an amino-C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl

20 group wherein the amino-C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group and an amino-

25 C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group;

R<sup>7</sup> is selected from the group consisting of a arylalkyl, aryl, heteroaryl, heterocyclo, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>1</sub>-C<sub>6</sub>-carboxyalkyl and a C<sub>1</sub>-C<sub>6</sub>-hydroxyalkyl group;

- 5 R<sup>8</sup> and R<sup>9</sup> and R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of a hydrido, hydroxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl, heteroar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl cycloalkyl, cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, heterocycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, aralkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonylar-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminocarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, the sulfoxide or sulfone of any said thio substituents, perfluoro-C<sub>1</sub>-C<sub>6</sub>-alkyl, trifluoromethyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkyl, alkoxycarbonylamino-C<sub>1</sub>-C<sub>6</sub>-alkyl and an amino-C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, cycloalkyl and C<sub>1</sub>-C<sub>6</sub>-alkanoyl, or wherein R<sup>8</sup> and R<sup>9</sup> or R<sup>10</sup> and R<sup>11</sup> and the carbon to which they are bonded form a carbonyl group, or wherein R<sup>8</sup> and R<sup>9</sup> or R<sup>10</sup> and R<sup>11</sup>, or R<sup>8</sup> and R<sup>10</sup> together with the atoms to which they

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are bonded form a 5- to 8-membered carbocyclic ring, or a 5- to 8-membered heterocyclic ring containing one or two heteroatoms that are nitrogen, oxygen, or sulfur, with the proviso that only one of R<sup>8</sup> and R<sup>9</sup>

5 or R<sup>10</sup> and R<sup>11</sup> is hydroxy;

R<sup>12</sup> and R<sup>12'</sup> are independently selected from the group consisting of a hydrido, C<sub>1</sub>-C<sub>6</sub>-alkyl, aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl, heteroaralkyl, C<sub>2</sub>-C<sub>6</sub>-alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkyl, cycloalkyl, cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, heterocycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, amino-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonylar-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminocarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, the sulfoxide or sulfone of any said thio substituents, perfluoro-C<sub>1</sub>-C<sub>6</sub>-alkyl, trifluoromethyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkyl, alkoxycarbonylamino-C<sub>1</sub>-C<sub>6</sub>-alkyl and an amino-C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, cycloalkyl and C<sub>1</sub>-C<sub>6</sub>-alkanoyl;

R<sup>13</sup> is selected from the group consisting of a hydrido, benzyl, phenyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-

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alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl and a C<sub>1</sub>-C<sub>6</sub>-hydroxyalkyl group; and

R<sup>20</sup> is (a) -O-R<sup>21</sup>, where R<sup>21</sup> is selected from the group consisting of a hydrido, C<sub>1</sub>-C<sub>6</sub>-alkyl, aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl group and a pharmaceutically acceptable cation, or (b) -NH-O-R<sup>22</sup> wherein R<sup>22</sup> is a selectively removable protecting group.

120. The intermediate compound according to 119 wherein said selectively removable protecting group is selected from the group consisting of a 2-tetrahydropyranyl, C<sub>1</sub>-C<sub>6</sub>-acyl, aroyl, benzyl, p-methoxybenzyloxycarbonyl, benzyloxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-CH<sub>2</sub>- , C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-CH<sub>2</sub>- and an o-nitrophenyl group.

121. The intermediate compound according to claim 119 wherein said nucleophilically displaceable leaving group, D, is selected from the group consisting of a halo, nitro, azido, phenylsulfoxido, aryloxy, C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfonate or arylsulfonate group and a trisubstituted ammonium group in which the three substituents are independently aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkyl.

122. The intermediate compound according to claim 119 wherein said halo group is fluoro.

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123. The intermediate compound according to claim 119 wherein  $g$  is zero.

124. A pharmaceutical composition that  
5 comprises a compound according to claim 52 dissolved or dispersed in a pharmaceutically acceptable carrier.

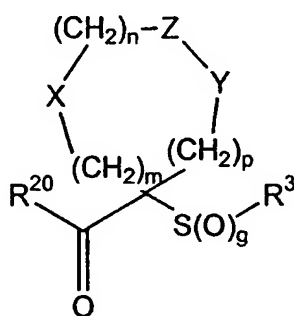
125. A pharmaceutical composition that  
10 comprises a compound according to claim 62 dissolved or dispersed in a pharmaceutically acceptable carrier.

126. A pharmaceutical composition that  
15 comprises a compound according to claim 69 dissolved or dispersed in a pharmaceutically acceptable carrier.

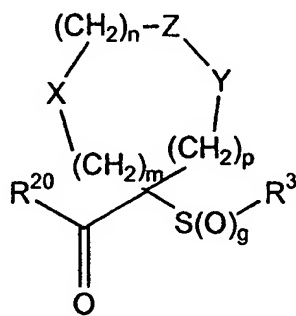
127. A pharmaceutical composition that  
20 comprises a compound according to claim 87 dissolved or dispersed in a pharmaceutically acceptable carrier.

128. A process for forming a  
25 metalloprotease inhibitor compound product or intermediate compound product therefore that comprises the step of coupling an intermediate compound with another moiety, wherein said intermediate compound corresponds in structure to  
30 formula VIB, below, and said product corresponds in structure to formula VIA, below:

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VIA



VIB

wherein

$g$  is zero, 1 or 2;

5  $R^{3'}$  is an aryl or heteroaryl group that is substituted with a coupling substituent reactive for coupling with another moiety ;

$R^3$  is an optionally substituted aryl or optionally substituted heteroaryl radical, and when

10 said aryl or heteroaryl radical is substituted, the substituent is (a) selected from the group consisting of an optionally substituted cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, aralkoxy, heteroaralkoxy,

15 aralkoxyalkyl, aryloxyalkyl, aralkanoylalkyl, arylcarbonylalkyl, aralkylaryl, aryloxyalkylaryl, aralkoxyaryl, arylazoaryl, arylhydrazinoaryl, alkylthioaryl, arylthioalkyl, alkylthioaralkyl, aralkylthioalkyl, an aralkylthioaryl radical, the

20 sulfoxide or sulfone of any of the thio substituents, and a fused ring structure comprising two or more 5- or 6-membered rings selected from the group consisting of aryl, heteroaryl, cycloalkyl and heterocycloalkyl, and (b) is itself optionally

25 substituted with one or more substituents independently selected from the group consisting of a

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cyano, perfluoroalkyl, trifluoromethoxy,  
trifluoromethylthio, haloalkyl, trifluoromethylalkyl,  
aralkoxycarbonyl, aryloxycarbonyl, hydroxy, halo,  
alkyl, alkoxy, nitro, thiol, hydroxycarbonyl,  
5 aryloxy, arylthio, aralkyl, aryl, arylcarbonylamino,  
heteroaryloxy, heteroarylthio, heteroaralkyl,  
cycloalkyl, heterocyclooxy, heterocyclothio,  
heterocycloamino, cycloalkyloxy, cycloalkylthio,  
heteroaralkoxy, heteroaralkylthio, aralkoxy,  
10 aralkylthio, aralkylamino, heterocyclo, heteroaryl,  
arylazo, hydroxycarbonylalkoxy, alkoxycarbonylalkoxy,  
alkanoyl, arylcarbonyl, aralkanoyl, alkanoyloxy,  
aralkanoyloxy, hydroxyalkyl, hydroxyalkoxy,  
alkylthio, alkoxyalkylthio, alkoxycarbonyl,  
15 aryloxyalkoxyaryl, arylthioalkylthioaryl,  
aryloxyalkylthioaryl, arylthioalkoxyaryl,  
hydroxycarbonylalkoxy, hydroxycarbonylalkylthio,  
alkoxycarbonylalkoxy, alkoxycarbonylalkylthio, amino,  
wherein the amino nitrogen is (i) unsubstituted,  
20 or (ii) substituted with one or two substituents  
that are independently selected from the group  
consisting of an alkyl, aryl, heteroaryl,  
aralkyl, cycloalkyl, aralkoxycarbonyl,  
alkoxycarbonyl, arylcarbonyl, aralkanoyl,  
25 heteroarylcarbonyl, heteroaralkanoyl and an  
alkanoyl group, or (iii) wherein the amino  
nitrogen and two substituents attached thereto  
form a 5- to 8-membered heterocyclo or  
heteroaryl ring containing zero to two  
30 additional heteroatoms that are nitrogen, oxygen  
or sulfur and which ring itself is (a)  
unsubstituted or (b) substituted with one or two  
groups independently selected from the group

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- consisting of an aryl, alkyl, heteroaryl,  
aralkyl, heteroaralkyl, hydroxy, alkoxy,  
alkanoyl, cycloalkyl, heterocycloalkyl,  
alkoxycarbonyl, hydroxyalkyl, trifluoromethyl,  
5 benzofused heterocycloalkyl, hydroxyalkoxyalkyl,  
aralkoxycarbonyl, hydroxycarbonyl,  
aryloxycarbonyl, benzofused heterocycloalkoxy,  
benzofused cycloalkylcarbonyl, heterocyclo-  
alkylcarbonyl, and a cycloalkylcarbonyl group,  
10 carbonylamino  
wherein the carbonylamino nitrogen is (i)  
unsubstituted, or (ii) is the reacted amine of  
an amino acid, or (iii) substituted with one or  
two radicals selected from the group consisting  
15 of an alkyl, hydroxyalkyl, hydroxyheteroaralkyl,  
cycloalkyl, aralkyl, trifluoromethylalkyl,  
heterocycloalkyl, benzofused heterocycloalkyl,  
benzofused heterocycloalkyl, benzofused  
cycloalkyl, and an N,N-dialkylsubstituted  
20 alkylamino-alkyl group, or (iv) the carboxamido  
nitrogen and two substituents bonded thereto  
together form a 5- to 8-membered heterocyclo,  
heteroaryl or benzofused heterocycloalkyl ring  
that is itself unsubstituted or substituted with  
25 one or two radicals independently selected from  
the group consisting of an alkyl,  
alkoxycarbonyl, nitro, heterocycloalkyl,  
hydroxy, hydroxycarbonyl, aryl, aralkyl,  
heteroaralkyl and an amino group,  
30 wherein the amino nitrogen is  
(i) unsubstituted, or (ii) substituted with  
one or two substituents that are  
independently selected from the group



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consisting of alkyl, aryl, and heteroaryl,  
or (iii) wherein the amino nitrogen and two  
substituents attached thereto form a 5- to  
8-membered heterocyclo or heteroaryl ring,  
5 and an aminoalkyl group

wherein the aminoalkyl nitrogen is (i)  
unsubstituted, or (ii) substituted with one or two  
substituents independently selected from the group  
consisting of an alkyl, aryl, aralkyl, cycloalkyl,  
10 aralkoxycarbonyl, alkoxycarbonyl, and an alkanoyl  
group, or (iii) wherein the aminoalkyl nitrogen and  
two substituents attached thereto form a 5- to 8-  
membered heterocyclo or heteroaryl ring;

m is zero, 1 or 2;

15 n is zero, 1 or 2;

p is zero, 1 or 2;

the sum of  $m + n + p = 1, 2, 3$  or 4;

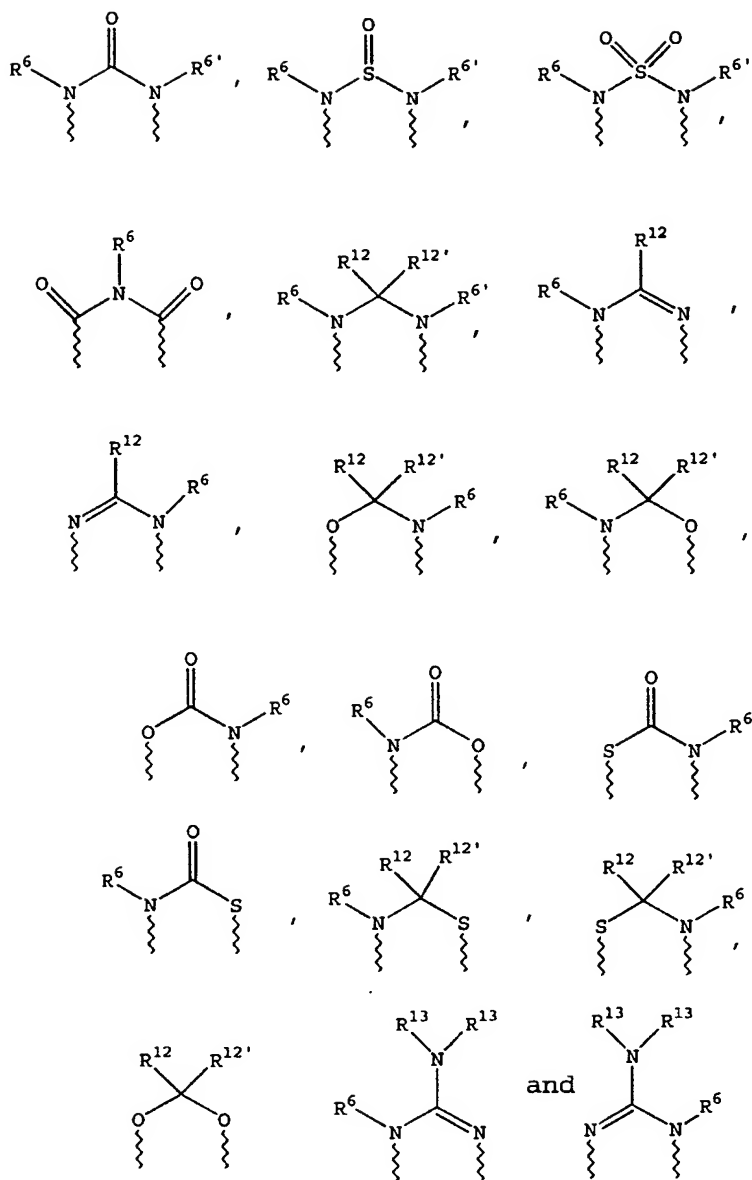
(a) one of X, Y and Z is selected from  
the group consisting of  $C(O)$ ,  $NR^6$ , O, S,  $S(O)$ ,  $S(O)_2$   
20 and  $NS(O)_2R^7$ , and the remaining two of X, Y and Z are  
 $CR^8R^9$ , and  $CR^{10}R^{11}$ , or

(b) X and Z or Z and Y together  
constitute a moiety that is selected from the group  
consisting of  $NR^6C(O)$ ,  $NR^6S(O)$ ,  $NR^6S(O)_2$ ,  $NR^6S$ ,  $NR^6O$ ,  
25  $SS$ ,  $NR^6NR^6$  and  $OC(O)$ , with the remaining one of X, Y  
and Z being  $CR^8R^9$ , or

(c) n is zero and X, Y and Z together  
constitute a moiety selected from the group  
consisting of

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5                    wherein wavy lines are bonds to the atoms  
of the depicted ring;

$R^6$  and  $R^{6'}$  are independently selected from  
the group consisting of hydrido,  $C_1$ - $C_6$ -alkanoyl,  $C_6$ -  
aryl- $C_1$ - $C_6$ -alkyl, aroyl, bis( $C_1$ - $C_6$ -alkoxy- $C_1$ - $C_6$ -  
10 alkyl)- $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -alkyl,  $C_1$ - $C_6$ -haloalkyl,  $C_1$ -  
 $C_6$ -perfluoroalkyl,  $C_1$ - $C_6$ -trifluoromethylalkyl,  $C_1$ - $C_6$ -

- perfluoroalkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, C<sub>3</sub>-C<sub>8</sub>-heterocycloalkyl, C<sub>3</sub>-C<sub>8</sub>-heterocycloalkylcarbonyl, C<sub>6</sub>-aryl, C<sub>5</sub>-C<sub>6</sub>-heterocyclo, C<sub>5</sub>-C<sub>6</sub>-heteroaryl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-arylsulfonyl, C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl, C<sub>5</sub>-C<sub>6</sub>-heteroarylsulfonyl, carboxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminocarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkyliminocarbonyl, C<sub>6</sub>-aryliminocarbonyl, C<sub>5</sub>-C<sub>6</sub>-heterocycloiminocarbonyl, C<sub>6</sub>-arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>6</sub>-arylthio-C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>1</sub>-C<sub>4</sub>-alkylthio-C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>5</sub>-C<sub>6</sub>-heteroaryl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkanoyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy-C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>5</sub>-alkoxycarbonyl, aryloxycarbonyl, NR<sup>8</sup>R<sup>9</sup>-C<sub>1</sub>-C<sub>5</sub>-alkylcarbonyl, hydroxy-C<sub>1</sub>-C<sub>5</sub>-alkyl, an aminocarbonyl wherein the aminocarbonyl nitrogen is
- (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group, hydroxyaminocarbonyl, an aminosulfonyl group wherein the aminosulfonyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a

C<sub>1</sub>-C<sub>6</sub>-alkanoyl group, an amino-C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl group wherein the amino-C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group and an amino-C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>8</sub>-cycloalkyl and a C<sub>1</sub>-C<sub>6</sub>-alkanoyl group;

R<sup>7</sup> is selected from the group consisting of a arylalkyl, aryl, heteroaryl, heterocyclo, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>3</sub>-C<sub>6</sub>-alkynyl, C<sub>3</sub>-C<sub>6</sub>-alkenyl, C<sub>1</sub>-C<sub>6</sub>-carboxyalkyl and a C<sub>1</sub>-C<sub>6</sub>-hydroxyalkyl group;

R<sup>8</sup> and R<sup>9</sup> and R<sup>10</sup> and R<sup>11</sup> are independently selected from the group consisting of a hydrido, hydroxy, C<sub>1</sub>-C<sub>6</sub>-alkyl, aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl, heteroar-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl cycloalkyl, cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, heterocycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, aralkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonylar-C<sub>1</sub>-C<sub>6</sub>-alkyl, aminocarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, the sulfoxide or

sulfone of any said thio substituents, perfluoro-C<sub>1</sub>-C<sub>6</sub>-alkyl, trifluoromethyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkyl, alkoxycarbonylamino-C<sub>1</sub>-C<sub>6</sub>-alkyl and an amino-C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein the aminoalkyl nitrogen is

5 (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, cycloalkyl and C<sub>1</sub>-C<sub>6</sub>-alkanoyl, or wherein R<sup>8</sup> and R<sup>9</sup> or R<sup>10</sup> and R<sup>11</sup> and the carbon to which they are bonded form a

10 carbonyl group, or wherein R<sup>8</sup> and R<sup>9</sup> or R<sup>10</sup> and R<sup>11</sup>, or R<sup>8</sup> and R<sup>10</sup> together with the atoms to which they are bonded form a 5- to 8-membered carbocyclic ring, or a 5- to 8-membered heterocyclic ring containing one or two heteroatoms that are nitrogen, oxygen, or

15 sulfur, with the proviso that only one of R<sup>8</sup> and R<sup>9</sup> or R<sup>10</sup> and R<sup>11</sup> is hydroxy;

R<sup>12</sup> and R<sup>12'</sup> are independently selected from the group consisting of a hydrido, C<sub>1</sub>-C<sub>6</sub>-alkyl, aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryl, heteroaralkyl, C<sub>2</sub>-C<sub>6</sub>-alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl, thiol-C<sub>1</sub>-C<sub>6</sub>-alkyl,

20 cycloalkyl, cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, heterocycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, amino-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, hydroxycarbonylar-C<sub>1</sub>-C<sub>6</sub>-alkyl,

25 aminocarbonyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, aryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroaryloxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-alkylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, arylthio-C<sub>1</sub>-C<sub>6</sub>-alkyl, heteroarylthio-C<sub>1</sub>-C<sub>6</sub>-

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alkyl, the sulfoxide or sulfone of any said thio substituents, perfluoro-C<sub>1</sub>-C<sub>6</sub>-alkyl, trifluoromethyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, halo-C<sub>1</sub>-C<sub>6</sub>-alkyl, alkoxycarbonylamino-C<sub>1</sub>-C<sub>6</sub>-alkyl and an amino-C<sub>1</sub>-C<sub>6</sub>-alkyl group wherein  
5 the aminoalkyl nitrogen is (i) unsubstituted or (ii) substituted with one or two radicals independently selected from the group consisting of C<sub>1</sub>-C<sub>6</sub>-alkyl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl, cycloalkyl and C<sub>1</sub>-C<sub>6</sub>-alkanoyl;

R<sup>13</sup> is selected from the group consisting  
10 of a hydrido, benzyl, phenyl, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>2</sub>-C<sub>6</sub>-alkynyl, C<sub>2</sub>-C<sub>6</sub>-alkenyl and a C<sub>1</sub>-C<sub>6</sub>-hydroxyalkyl group; and

R<sup>20</sup> is (a) -O-R<sup>21</sup>, where R<sup>21</sup> is selected from the group consisting of a hydrido, C<sub>1</sub>-C<sub>6</sub>-alkyl,  
15 aryl, ar-C<sub>1</sub>-C<sub>6</sub>-alkyl group and a pharmaceutically acceptable cation, or (b) -NH-O-R<sup>22</sup> wherein R<sup>22</sup> is a selectively removable protecting group.

129. The process according to claim 128  
20 including the further step of recovering said product.

130. The process according to claim 128 wherein R<sup>20</sup> is -NH-O-R<sup>22</sup>, wherein R<sup>22</sup> is a  
25 selectively removable protecting group.

131. The process according to claim 130 wherein said selectively removable protecting group is selected from the group consisting of a 2-  
30 tetrahydropyranyl, C<sub>1</sub>-C<sub>6</sub>-acyl, aroyl, benzyl, p-

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methoxybenzyloxycarbonyl, benzyloxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy-CH<sub>2</sub>- , C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkoxy-CH<sub>2</sub>- , an o-nitrophenyl group and a peptide synthesis resin.

5

132. The process according to claim 128 wherein said coupling substituent is a nucleophilically displaceable leaving group

10

133. The process according to claim 122 wherein said nucleophilically displaceable leaving group is selected from the group consisting of a halo, nitro, azido, phenylsulfoxido, aryloxy, C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfonate or arylsulfonate group and a trisubstituted ammonium group in which the three substituents are independently aryl, ar- C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkyl.

15

134. The process according to claim 128 wherein g 2.

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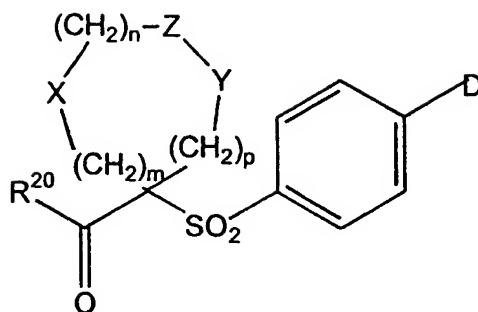
135. The process according to claim 128 wherein said R<sup>3</sup> aryl or heteroaryl group is an aryl group.

25

136. The process according to claim 128 wherein said intermediate that corresponds in structure to formula VI corresponds in structure to formula VIIA, below,

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VIIA

wherein D is said nucleophilically  
displaceable leaving group and is selected from the  
group consisting of a halo, nitro, azido,  
5 phenylsulfoxido, aryloxy, C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-  
alkylsulfonate or arylsulfonate group and a  
trisubstituted ammonium group in which the three  
substituents are independently aryl, ar- C<sub>1</sub>-C<sub>6</sub>-alkyl  
or C<sub>1</sub>-C<sub>6</sub>-alkyl.

10

137. The process according to claim 128  
including the further step of recovering said  
product.

15

138. The process according to claim 128  
including the further step of selectively removing  
said protecting group, R<sup>22</sup>.

20

139. The process according to claim 138  
wherein said protecting group, R<sup>22</sup>, is removed after  
carrying out the further step of recovering said  
product.



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140. The process according to claim 139 wherein said protecting group,  $R^{22}$ , is a 2-tetrahydropyranyl group.

5                   141. The process according to claim 129 wherein  $R^{21}$  in said product after recovery is hydrido, and including the further step of reacting said product with hydroxyl amine or a hydroxyl amine whose oxygen is reacted with a selectively removable  
10 protecting group selected from the group consisting of a 2-tetrahydropyranyl,  $C_1-C_6$ -acyl, aroyl, benzyl, p-methoxybenzyloxycarbonyl, benzyloxycarbonyl,  $C_1-C_6$ -alkoxycarbonyl,  $C_1-C_6$ -alkoxy- $CH_2-$ ,  $C_1-C_6$ -alkoxy- $C_1-C_6$ -alkoxy- $CH_2-$ , an o-nitrophenyl group and a peptide  
15 synthesis resin to form a hydroxamic acid or protected hydroxamate product.

                  142. The process according to claim 141 including the further step of recovering the product  
20 formed.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/23242

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C07D211/66 C07D309/08 A61K31/445 A61K31/35 A61K31/16  
C07C317/44 C07D335/02 C07D405/12 C07D409/12 C07D211/94  
C07D405/14 C07D239/04 C07D417/12 C07D407/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C07D C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 780 386 A (HOFFMANN LA ROCHE ; AGOURON PHARMA (US)) 25 June 1997 cited in the application see the whole document ---	1-142
Y	WO 97 24117 A (RHONE-POULENC RORER PHARMA ; GRONEBERG ROBERT D (US); NEUENSCHWANDE) 10 July 1997 cited in the application see the whole document ---- -/--	1-142

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

4 March 1999

Date of mailing of the international search report

20.04.99

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Fink, D

## INTERNATIONAL SEARCH REPORT

Int. l. Application No

PCT/US 98/23242

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section Ch, Week 9302 Derwent Publications Ltd., London, GB; Class B03, AN 93-012141 XP002095370 & JP 04 338331 A (TAKEDA CHEM IND LTD) , 25 November 1992 see abstract -& JP 04 338331 A (TAKEDA CHEM IND LTD) 25 November 1992 see, in particular, pages 3-4, table 1, the entries no. 7-9, 13, 16, 21, 22, 31, 36, and 41-43 ---	104, 117-119, 121-123
X	EP 0 266 182 A (TAKEDA CHEMICAL INDUSTRIES LTD) 4 May 1988  see page 19; claim 1 see page 10; examples 9-11 see page 15; examples 35,38 ---	104, 117-119, 121-123
P,X	WO 98 37877 A (AMERICAN CYANAMID CO) 3 September 1998 see the whole document ---	1-142
P,X	WO 98 38163 A (AMERICAN CYANAMID CO) 3 September 1998 see the whole document -----	1-6

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 98/23242

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 1-51 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☒ Claims Nos.: 104-120, 122, 123  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Claims Nos.: 104-120,122,123

The novelty search on the intermediate compounds of formula VI according to the present independent claim 104 - wherein R20 represents the group -O-R21 - revealed a vast amount of novelty-destroying documents. In the case of the said esters (R20 = -O-R21), the International Search Report therefore had to be limited to the intermediates of formula VII of the present claim 119, wherein the group D is defined according to present claim 121 (in the case of the hydroxamic acid derivatives of formula VI (R20 = -NH-O-R22) of the present claim 104, the International Search Report may be considered as being complete).

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/23242

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0780585 A	25-06-1997	AU 700725 B	14-01-1999
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